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MONTHLY REPORT OF THE OFFICES OF FOREST EXPERIMENT STATIONS AND DENDROLOGY

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MONTHLY REPORT OF THE OFFICES OF
FOREST EXPERIMENT STATIONS AND DENDROLOGY

February, 1926

Foreword

The Staff of a Research Laboratory

C. E. K. Mees, Director of the Research Laboratory,
Eastman Kodak Company

The staff of a research laboratory will consist of a director, who in small laboratories will himself be actively engaged in scientific work, but in larger laboratories will necessarily be occupied to a considerable extent with administrative duties, a senior staff of men of first-rate training and of considerable experience in research, a junior staff of younger men obtaining experience in methods of research under the guidance of the senior men, and a certain number of assistants without special scientific training who carry out routine work under the direction of the scientific staff.

Since a great many of the more important scientific discoveries have been made by men of transcendent genius, there is a general belief that research work must depend upon such men for its execution and that the prosecution of research depends upon the development of men of exceptional caliber. While it is true that men differ very greatly in ability and that their value for research work varies, the fact still remains that much scientific research depends upon the accumulation of facts and measurements, an accumulation requiring many years of patient labor by numbers of investigators, but not demanding any special originality on the part of the individual worker. Providing that an investigator is well trained, is interested in his work, and has a reasonable proportion of new ideas, he can make valuable contributions to scientific research even though he be entirely untouched by anything that might be considered as the fire of genius. And in considering the planning of research laboratories we have no right to assume that we can obtain men who are geniuses; all we have a right to assume is that we can obtain at a fair rate of recompense well trained, average men having a taste for research and a certain ability for investigation. It is, indeed, a matter of doubt how many of the men commonly considered to be of great genius by virtue of some important discovery they have made really possessed any distinguishing ability compared with their fellows who did not have the fortune to make a similarly important discovery. The imaginative mind will often seize an apparently trivial point which a less able mind might have passed by, and there are many men who have added to our knowledge whose minds appeared to those around them to be so fired that they illuminated everything that they touched, but such men are very rare and the bulk of the work of the world must be done by the average man.

Men who are only average when dealt with singly may become extremely able by the mental contact which follows association with other men working on similar problems. One of the most noteworthy points in the history of science is the way in which an investigator of great ability has surrounded himself with men who afterward showed great distinction in their scientific careers. To some extent this is undoubtedly due to the fact that students of ability are attracted by the renown of an original investigator, but it is also probable that the minds of men are quickened by contact, so that a group of men who taken individually would be only average can be raised to a high level of intellectual activity by association, and especially by the precept and example of one first-rate man. Every laboratory that is to succeed must, in fact, develop a corporate spirit and corporate object, and when such a development has taken place results of the first magnitude may be looked for. The splitting up of such a body of men is no less a loss than their association was a gain, and for the production of the best research it is desirable to facilitate the continued collaboration of men under favorable circumstances for their co-operation in scientific work.

The senior staff of the laboratory should consist of men of the highest scientific attainments available and at the same time of considerable experience in research; in fact, they should be men of such attainments as are compatible with the rank of professor or assistant professor in the university. As far as possible these men should regard their positions in a given research laboratory as permanent, and every effort should be made to induce them to look at those positions in that light, since fluctuations in the senior staff are necessarily very detrimental to the work of the laboratory, and result in the loss of much time and energy by the abandonment or delay of partly finished investigations. As far as possible, gaps arising in the senior staff should be filled from the junior staff, but, of course, it will sometimes be necessary to obtain men from other laboratories.

The continuity of service which should be hoped for from the senior staff cannot be expected from the junior men, since they will desire, as they grow older and acquire experience, to undertake research on their own initiative as well as to obtain positions of greater responsibility and better remuneration, and will therefore go elsewhere; for no laboratory can develop continuously with sufficient rapidity to absorb the growth of its younger men. This will involve the leaving of the younger men to fill higher positions in other laboratories. Every research laboratory, therefore, must expect to assist in the training of the general body of research workers by taking men just graduated from the universities, and after they have had some years of experience in research work seeing them go again to occupy positions for which there cannot be an equivalent opening in the laboratory where they have acquired their training.

The junior men may be taken direct from the university either immediately after graduation, or after one or two years' experience as instructors or as post-graduate research students. It is doubtful if specific training for the work which they are to do is advisable. The most important requirement is that a man should really know the fundamentals of the subject which he is studying. If he is a physicist, he should really understand his physics; if a chemist, he should be well grounded in general chemistry. A man who has taken a scientific degree at a university may also be reasonably expected to have a good acquaintance with the literature of the subject, to be accustomed to reading up on specific points, and to know the journals in which search should be made for publications on different subjects. All scientific research men must be able to read French and German in addition to English; a knowledge of other languages will certainly be an advantage, but in the case of all men who propose to make scientific research their profession a knowledge of the three principal European languages to the extent of reading scientific literature is essential.

(To be continued)

FOREST EXPERIMENT STATIONS

Washington Office

We are very sorry indeed to lose from the ranks of the Research organization Mr. S. B. Show, who is taking on his new duties as the District Forester in California. Mr. Show has long been associated with investigative work in District 5 and has taken an active part in its progress there and elsewhere in the last ten years. It is with great regret that we see him go, and we wish him every possible success in his new line of work. We have no fear but that he will make as great a success of the District Forester's job as he has of his research work.

Status of Appropriations

The agricultural bill passed the Senate on February 27 and carried an increase in the item for silvical investigations of $30,000 for the establishment of a California forest experiment station. This new station was provided as a result of the passage of a bill last year which authorized $50,000 for the station. Senator Shortridge proposed an amendment to the bill which would increase the amount for silvical investigations by $20,000 to bring this item up to the original $50,000. This was not reported out favorably by the agricultural committee. Senator Overman also proposed an amendment to the agricultural bill which the committee took cognizance of, and, as a result, added $18,000 to the regular item for the Appalachian station. The appropriation bill is now going to conference and the Appalachian item is subject to discussion by the committee.

Three other bills of interest to experiment stations have been introduced. One by Representative Davila, of Porto Rico, provided for $40,000 for an experiment station for tropical forest research in Porto Rico, and is similar in general form to other bills introduced in previous years. Another similar bill was introduced in the Senate by Senator Fess that provides $30,000 for an Ohio-Mississippi Valley experiment station. One other bill for the Ohio Valley station was introduced by Representative Fitzgerald earlier in the winter.

Representative Edwards, of Georgia, introduced a bill providing $50,000 with which to purchase the land formerly the site of a famous old prison known as the "Old Stockade" in Georgia, the land to be used as an experiment station and National Park. Just how Representative Edwards plans to have this land function for both purposes is not stated.

Visitors

Show arrived in Washington the latter part of February to work with the editors on a couple of manuscripts which are almost ready for the printer so that when he takes up his new duties as District Forester they will not haunt him. He also has some other work in connection with the Section of Forest Measurements and general matters of interest to the Branch.

McArdle, of the Pacific Northwest Forest Experiment Station, is still in Washington working upon the yield study of the Douglas fir and getting information relative to forest fire studies which have been undertaken elsewhere. Meyer, from the Northeastern Station, spent a week in the office.

Mitchell, from the Lake States, will be in Washington early in March for a short period to avail himself of the services of the tabulating equipment.

Measurements

One of the vacant positions in the Section of Forest Measurements was filled during the month by the appointment of Miss Theresa Hoerner, and arrangements have been made for another appointment to fill the second vacancy. The work in the section has been largely upon the Douglas fir yield study which has now progressed to a point where the work is really beginning to show. Additional time was spent on the western yellow pine regional volume table.

Bruce and Reineke devoted considerable time to their proposed bulletin on curvilinear methods in forest research.

The tabulator was busy most of the month on the method of cutting study for District 5, Fire studies, and on the lightning storm reports for the Districts.

Detail of Mexican Foresters

Senor J. R. Alcaraz, Director of the Mexican Forest Service, has just completed arrangements with the Department whereby four representatives of the Forest Service of Mexico will visit the United States for a considerable period to study reforestation and silviculture in connection with the operations and experiments on the National Forests. These men are to be assigned one to the Southwestern Forest Experiment Station, one to the Forest Products Laboratory, one to the nursery at Monument, Colo., and one to the Sierra National Forest in California.

Dana's trip to Rome to attend the International Institute of Agriculture and the World's Forestry Congress as the Forest Service delegate now appears ready to materialize. Unless something unforeseen occurs he should sail early in April. After the meetings he plans an extended trip to several of the experiment stations. Sparhawk will also go to Rome as a Society of American Foresters' representative.

Library

During the month of February the library loaned 911 books and periodicals, and 135 members of the Service and others consulted the library in person.

There were 214 books and periodical articles indexed for the catalogue last month.

Southern Forest Experiment Station

General

Most of the members of the staff were in and out of the office during February, combining the necessary reexamination of various permanent plots in the field with efforts to catch up on office work.

Two additional student assistants arrived during February: W. H. Cole, who has had field experience in the California and Michigan regions, is helping for a few weeks with the core measurements on the accelerated growth study; A. L. MacKinney, for some months connected with the Northeastern Station on temporary work, reported at Starke, Florida, where he will assist Wyman on the enlarged naval stores program.

In discussing the location for the proposed tract of land which the Great Southern Lumber Company of Bogalusa has offered to the Louisiana State University Forest School, Forbes spent two days at Bogalusa in company with Professor Marckworth of the State University and State Forester Hine.

"Tentative Recommendations for Nursery Practice with Southern Pines in the Coastal Plain" was prepared by Hadley. These recommendations are based on the results to date of the forestation project at Bogalusa and were mimeographed for use in answering an increasing number of inquiries on this subject.

Protection, fire

Demmon continued the summarization of the fire damage data obtained on the extensive surveys during the last year. Charts were prepared from stand tables of virgin longleaf and shortleaf pine made on these surveys. These show up a deficiency among the smaller diameter classes which can be laid largely to the common practice of burning over the forest floor annually in this type of forest.

The winter burning of the fire plots located near Urania, Louisiana, and Raiford, Florida, was made by members of the station staff. Average winter fire conditions were successfully obtained but scantiness of vegetation on the plots near Urania, which can be laid to the effect of the severe drought of last year, caused the damaging effect of the fire to be less than normal.

Measurements

Forbes spent considerable time on a further analysis of the empirical growth study data, with Miss Regan's help on the computations.

Management

Demmon completed the annual reexamination of the Mr-1 plots at Urania.

Cole spent practically the entire month on core measurements for the study of accelerated growth at different heights on the tree.

A 10-acre plot was laid out on a cutting area of the Great Southern Lumber Company by Forbes, Demmon, and Cole with the help of Barron of the Great Southern Lumber Company, to be used as a method of cutting study in virgin longleaf pine. The marking was done on the basis used by the Great Southern Lumber Company, that of leaving an average of two thrifty seed trees per acre, 10 in. and over in diameter; where these are not available a single tree, sometimes as large as 16 or 18 inches, is left. The work of laying out this experimental area was interrupted by the necessity of fighting a grass fire which threatened to burn over the plot almost before it was laid out. This goes to illustrate the fire danger which everywhere threatens the results of such experiments carried on in this region.

Naval Stores

Wyman continued the work which he began in Washington on the analysis of last season's field data, by curvilinear correlations and the construction of yield curves.

With the help of the three student assistants at Starke, Wyman has laid out part of next season's field work by making the preliminary field reconnaissance, facing the new trees, raising tins, etc.

Forestation

The great amount of detail connected with the forestation projects has necessitated another revision of this program for the balance of this fiscal year and has resulted in again postponing the systematic examination of the Great Southern Lumber Company plantations until next summer. The routine of germination and seed bed counts, experimental plantings, and the reexamination of last year's plantations have kept Wakeley and Chapman extremely busy every day of the month, including also one 24-hour day when a check was obtained of germinator and room temperature thermometers by taking readings at 1/2 hour intervals. A new "Reed" thermostat made by Thermo-Electric Company of New Orleans was installed on one of the Jacobsen germinators and has been found to be very well adapted for this purpose, as it controls the temperature within $1/2^{\circ}$ Fahrenheit.

Arrangements for cooperation in seed testing have been made with the agricultural colleges of Oklahoma, Texas, Louisiana, Georgia, and Cornell, and 100 different seed samples representing as many phases of the seed studies with southern pines were sent to these colleges during the current month.

Protection, others

Hadley continued the reexamination of the quadrats on the grazing study at McNeill, with the help of H. R. Reed of the Coastal Plain Agricultural Experiment Station, and in the office has been revising the reproduction tally sheets on this grazing project.

Northern Rocky Mountain Forest Experiment Station

This winter finds the station with the largest office force it has ever had. There are seven people in the office regularly and on Fridays and Saturdays there are eight. All the men but Kempff are in Missoula. A ranger is detailed from the Bitterroot Forest for 2½ months and another ranger, who is attending the university, spends contributed time of 1½ days a week in the office. This makes for rather cramped office quarters. Six of the men work in the station's office of two medium-sized rooms. The clerk has her desk in the District library, which adjoins the station office, where one of the rangers also occupies table space.

Manuscripts of considerable length by Gisborne, Wahlenberg, and Larsen were given their first review during the month. Two of these, and possibly all three, will be submitted for Department publication. Gisborne and Wahlenberg's manuscripts have again been revised. Larsen's draft entitled "Conifers of the Northern Rocky Mountains" has been gone over by Management and is now being edited. This is at least a two-weeks' job and probably a longer one. Marshall is editing the report for English and also from the standpoint of correcting and incorporating facts pointed out by Management. The preparation of the District investigative report and program took considerable of Weidman's time. This has been delayed several weeks because of other work which demanded his prior attention. Owing to the fact that the Grazing section has not yet been submitted, the sending of the report to Washington will be delayed a few days longer.

Some attention was given to the matter of experimental centers. Further consideration of the conditions in the white pine type leads to the feeling that there should be a third center in it. The locality best suited for this seems to be in the southwest corner of the Clearwater Forest, with Musselshell R.S. as a central point. If this area is selected, there will be three experimental centers representing as many different conditions in the white pine type. The differences are most readily recognized from the standpoint of composition. In the Priest River region western hemlock and cedar, together with a great number of other species, are associated with white pine. In the Coeur d'Alene region, western hemlock occurs in the association, but cedar is almost entirely lacking. In the Clearwater region western hemlock is generally lacking and white fir supplants it as the leading associate of white pine. Although the present information on the geological differences is very rough, in a general way it may be stated that the Priest River country is largely of a granitic and schistose formation, the Coeur d'Alene of a shale formation, and the Clearwater bordering between lava and the older schistose formation. The soil of the Priest River locality is light colored and fairly deep; that of the Clearwater is very dark, very fine, and very deep; and the Coeur d'Alene soil lies between these two in character. From the standpoint of climatic differences, the Clearwater area receives greater rainfall and higher temperatures in the growing season than the two areas to the north. From general observation the rate of growth in the three localities would stand in the order: Clearwater, Priest River, Coeur d'Alene, with the best growth per acre occurring in the Clearwater region. In air-line distance, the Priest River area lies 45 miles north and the Clearwater area 100 miles south of the Coeur d'Alene area.

The work of revising volume tables for species in the white pine type is well under way. Haig is giving full time to it, assisted by Ranger Regnes of the Bitterroot Forest, who is on detail to the experiment station. This work also receives contributed time on the part of Ranger Yochelson of the Beaverhead Forest, who is in attendance at the university this winter.

Activity on fire studies this month took the form partly of a review and revision on Gisborne's proposed bulletin "Measuring Forest Fire Danger in Northern Idaho," and partly on compilations dealing with District weather and fire records.

Wahlenberg finished the revision of one report and spent the greater part of the month on another. In connection with one of these reports, Wahlenberg notes the first year's results of 400 yellow pine trees of each of three age classes planted in the fall of 1924. In the fall of 1925 these ranked as follows in survival: 1-2 86%, 3-0 83%, and 2-0 72%. The 3-0 was inferior to the 1-2 in balance and the 2-0 was inferior in general development. In the plantations of fall 1925 these and two other age classes are being further tested with especial reference to root distribution or form of root system. Age-class itself is not a constant factor; it affects survival only indirectly through its influence on plant development.

Wahlenberg reports an experiment initiated last year which demonstrates the possibility of stimulating root development locally in any desired part of the root system by means of layers of rich soil. It may be possible to use these results in nursery practice by depositing fertilizer in the bottom of plow furrows or perhaps by simply plowing under the fertilizer. If planting stock can be produced with an unusually large number of roots from six to eight inches below the surface, a corresponding increase in drought hardiness of field plantations is expected. Experiments are planned to attain this end with transplant stock by other means, employing root pruning and the transplanting operation.

Kempff reports the usual midwinter activities at the Priest River Branch, namely, the care and maintenance of the plant and efforts to catch up with office work. The resident officer at a branch station with six or seven buildings, telephone lines, water system, live stock, etc., to take care of in the winter has outdoor duties which allow all too little time for catching up with office work.

Lake States

(January and February combined)

Some time was devoted to preparing brief accounts of the work of the past year and formulating the investigative program for the coming year. These were embodied in the report of the station to the Advisory Committee. It was not deemed wise this year to have the conference of the Advisory Committee prior to the submission of our investigative annual report, but this meeting will be held later in the spring. The approval of the report by the committee is being secured by circulating it to the individual members. It is hoped that the report will be acted upon by the Advisory Committee by March 1, and the investigative program submitted to Washington not later than March 15.

The office work on the several projects continued with the usual ups and downs. Brown spent a few days at the Forest Products Laboratory at Madison, discussing the problems that have arisen in the compilation of the logging data. The leaf litter material, collected in the process of our leaf litter study during last summer, was turned over to Dr. Alway of the Division of Soils of the University of Minnesota for chemical analysis. The Handbook of Forest Planting in the Lake States is now being typewritten for the last (?) time.

Zon attended the National Drainage Congress at Oklahoma City where, on January 19, he delivered a paper on "The Effect of the Drainage of Swamps Upon Forest Growth." As the result of this trip, the station secured cooperation with the Division of Agricultural Engineering of the Bureau of Public Roads, Department of Agriculture, in its study of methods and costs of swamp drainage for forest purposes.

With the beginning of the winter quarter, the station started a forestry seminar at the University of Minnesota on the subject, Forests and Waters, in all the different phases. The seminar is creating considerable interest among both the faculty and the students. As a part of the seminar, a set of lantern slides was prepared mostly of diagrams illustrating the relationship between forests and climatic factors, the only set of such slides ever prepared in the Forest Service.

The outstanding development at the station during February was the consummation of the transfer by the Cleveland Cliffs Iron Company of an experimental tract in the Upper Peninsula of Michigan to the Forest Service for a center of field work. The agreement of the transfer of the land to the United States Government has been signed by the Assistant Secretary of Agriculture and the president of the Cleveland Cliffs Iron Company. The development of this new center of field work, which to the people of Michigan is tantamount to a forest experiment station, will demand much thought and effort on the part of the staff during the field season. In fact, the center of field work is really the first forest experimental area in the entire state of Michigan.

Another event worth recording, besides the continued work on the projects, is Zon's trip through Michigan and Wisconsin. This trip was to talk over with the members of the Advisory Committee the investigative program of the station for the coming year. There are considerable new developments in Wisconsin and Michigan, especially in the utilization of the cut-over lands. A new back-to-the-land movement is now on in northern Wisconsin and Michigan. It is not, however, settlers who are now trekking into the wilds of northern Wisconsin, but rich man's clubs and other recreational organizations of city people for the purchase of lake frontage and hunting preserves. This movement is bound to have an effect upon forestry. It will make a demand for efficient fire protection, it will helpthe reclaiming of large portions of cut-over land to timber, it will probably affect the price of land for National and state forests, and will narrow the opportunities of the common people

for recreation. It is claimed that from 60 to 70 per cent of all lake frontage in northern Wisconsin has already been bought up by rich men's clubs and other organizations.

The month was further characterized by a number of papers delivered by members of the staff. Mitchell gave a talk on February 8 on the "Analysis and Use of Forest Fire Statistics" to the class in Forest Protection at the University of Minnesota, and on February 16 a talk before the state rangers on the "Results of the Fire Weather Studies." Both were very well received. In the latter address the significance of the 8 a. m. humidity reading was brought out by a number of charts based on last season's records which showed that breaks both in the number of fires and in the area burned - particularly the latter - were preceded by one or more days with low 8 a. m. humidity readings. Fifty per cent appears to be the "danger line" in northern Minnesota. On the basis of last season's record, therefore, it seems safe to say that if the 8 a. m. reading for two or more consecutive days is 50 per cent or below, a "blow-up" is to be expected. The Cass River fire on the Minnesota National Forest and the Marble Lake fire in northeastern Minnesota are striking illustrations of this. What can be done about it is another matter, but apparently there is no excuse for not being forewarned. On February 16, Mitchell also spoke before the Section of the Society on the subject of "Fire Damage." During the balance of the month he has been getting his work lined up for the coming field season and checking over the fire study tabulation sheets received from Washington.

Pacific Northwest

On February 12 the station's Advisory Council met and three days later the District Investigative Committee. The initial meeting of the Advisory Council at Portland was well attended and the discussion from 10.30 until 4.30 was actively participated in by nearly all. C. S. Chapman was elected chairman. The local press considered the meeting good news.

The District Investigative Committee session was condensed into a day and a half with meetings of subcommittees before and after to settle details. The program recommended by the Advisory Council and approved by the Investigative Committee is not different in many respects from that of 1925 because much of the current work must be continued. The principal new project for the experiment station is the growth and yield study of yellow pine. The committee was again impressed with the enormous amount of "paper work" now required to present to the committee members the last season's work and to draft the next year's program. A simplification of the procedure is earnestly recommended.

Mr. J. L. Alexander, in charge of forest research in the British Columbia Forest Service, came to Portland for the Advisory Council meeting and stayed 10 days thereafter to go over our work intimately with

each one. Much benefit was gained on both sides by his visit. With Isaac he made the monthly examination of the seed dissemination catchers, and with Munger took a half-day trip to see some second growth fir.

The Director has been appointed to the District Library Committee which insures better correlation between the experiment station and the District Office libraries. He spoke February 5 at the monthly meeting of the entire District Office personnel on the work of the experiment station.

With the commencement of the field season and upon the completion of the Douglas fir yield study McArdle will be assigned to fire studies. He brings to this important department of our work a fresh point of view and lots of enthusiasm and vision. Simultaneously we will welcome W. H. Meyer now of the Northeastern Station who will take over the Mensuration work in which he is a recognized expert and for which there is insistent demand to answer our many problems.

McArdle spent the first week of February on annual leave. His detail in Washington is nearly finished, the revision of the Douglas fir volume tables having been completed and considerable progress made on the yield study of Douglas fir.

With the exception of one day at the Investigative Committee meeting and another to make the periodic seed collection from the Scappoose seed traps, Isaac spent the month preparing progress reports. In the Abies seed storage test seed placed in cold storage four years ago showed a germination capacity of 35 per cent. The seed used had some insect infestation to start with so it is probable that with a better quality of seed a higher per cent of viability can be secured. Up to the present time no method of storage has been discovered whereby Abies seed could be made to retain its viability longer than one season.

Westveld completed the computation of the yellow pine brush disposal data and wrote the progress report. He spent the last few days of the month going over the records of the Wind River arboretum and lining up the work to be done there this spring.

The lightning and static studies have occupied a large part of Simson's time during the month. He also prepared a short article, at the request of the Esterline-Angus Company, on the use of the recording milliammeter in radio circuits.

In analyzing the past season's noon relative humidity readings for certain selected stations, two rather interesting features were brought out.

The noon relative humidity readings taken on a mountain top near, but 3750 feet above, the Wind River Station average about 20 points higher than those taken at Wind River. On the contrary, short series of simultaneous readings taken on a mountain of identical elevation but about 10 miles to northeast of the Wind River Station showed no variation of practical significance from those taken at Wind River, either as to absolute or relative humidity. A comparison of the Guler (east slope of the Cascades) with the Wind River (west slope) observations showed that on the whole the noon humidities at Guler were markedly lower than those of Wind River, which was to be expected owing to dryness of site, but that Wind River suffered greater extremes of low humidity, which was rather a surprise.

Appalachian Forest Experiment Station

General

Report writing and compilation of data occupied most of the staff during February. Frothingham revised and submitted the station's annual program. Haasis prepared his report on the grazing damage project, recommending its discontinuance, as a project, the study to be carried on, for the time being, as a part of the study of methods of cutting in the hardwood types. Haasis also wrote a report on the Bent Creek sample plots (methods of cutting) and began the compilation of field data for a report on the Berea, Ky. sample plots. Humphrey spent most of the month at Morganton, N. C., on his study of the relation of decay to the tannin content of chestnut extract wood. McCarthy continued the work on his fire damage report and prepared a separate article on the Bent Creek fire of April, 1925. At last reports Korstian was making progress at New Haven on his study of the germination and establishment of oaks. At the request of state district firewarden, T. W. Alexander, McCarthy attended a meeting of local firewardens at Marshall, N. C., and talked on the subject of forest fire damage.

About two pounds of yellow poplar seeds were given the station by the Champion Fibre Company for germination tests to add to the data previously obtained. This seed was collected in north Georgia.

Fire damage study

Data collected on eleven burned areas throughout the Southern Appalachian region have been compiled by McCarthy to show the percentage of trees killed by fires whose severity was scaled according to the damage to the 3-inch class. When these curves were plotted on semi-logarithmic paper they were found to be straight lines throughout the greater part of their length, and parallel to each other. From this a formula has been derived to express the relative damage to size classes under uniform hazard. This formula will be further tested to determine its limitations.

Tannin content of decayed chestnut wood

While at Morganton Humphrey prepared samples of decayed wood for the extraction of tannin. About 135 samples selected by Gravatt and Marshall in Virginia were reduced to sawdust and await analysis. Twenty-three of the sound samples have been sent to ten cooperating chemists and 24, mainly of decayed wood, have been reserved for Dr. Rogers, chemist of the International Shoe Company, Morganton.

Preliminary analyses on rotten wood at Morganton have indicated the necessity of revising the standard A.L.C.A. method for the quantitative determination of tannin, when applied to decayed chestnut. As soon as something satisfactory is worked out the remainder of the samples will be analyzed.

Dr. Humphrey spent the last few days of the month in Asheville checking over experimental data and specimens for a manuscript on the durability of American woods.

Numbering permanent sample plots

On compiling a list of the station's permanent sample plots some inconsistencies in the numbering were found and revision seems necessary to avoid later confusion. Several plans for numbering have been considered. Before adopting a general plan it was decided to find out what systems other stations were using so that the plan finally decided upon could be made to conform as much as possible to the procedure elsewhere. Inquiries were accordingly sent to a number of the stations.

Rocky Mountain Forest Experiment Station

February Activities

Roeser gave the largest allotment of time to his station forest management report, which is now just about completed.

Bates spent nearly all his time on the growth-study report which is now ready for final writing and should be out by the middle of March.

Bates and Roeser both went to Denver on the 17th where the latter presented the subject of breeding experiments before an afternoon meeting of the Society of American Foresters. In the evening Bates read a general paper on the scientific work connected with forestry at a meeting of the scientific fraternity of Denver University.

The station staff was invited to participate in another agricultural campaign of the Rock Island R.R. in eastern Colorado, but owing to the time required for other efforts to stimulate tree planting which promise more tangible results and are less in conflict with the activities of the state extension forester, this invitation was declined. Supervisor Hamel of the Pike, however, very kindly substituted for several days.

March Plans

About one week is expected to be consumed in lining up the tree-planting contest for the schools of eastern Colorado.

On return from this trip Bates will probably break into the accumulation of soils data and attempt to find out just where previous experiments have led us. This is essential in order that more comprehensive tests may be put under way this spring.

Roeser's time will be divided between summarizing of T-1 evaporation data, 1925 heat tests (T-2) and counts made in the several breeding studies.

Northeastern

Westveld attended the winter meeting of the New York section of the Society of American Foresters which was held in New York the latter part of the month; he also attended the annual meeting of the Woodlands Section of the American Paper and Pulp Association at which some unusually interesting papers were presented on the organization and management of pulp wood lands. Meyer spent a few days in Washington, familiarizing himself with various phases of mensuration work which is being carried on there.

Behre revised his manuscript on "Form Class Taper Curves and Volume Tables," and has it ready for final approval. He also checked over the permanent records of taper measurements on the Cherry Mountain timber sale plots on the White Mountain National Forest.

Westveld has his data on increment on cut-over spruce and fir lands in shape to be entered on punch cards. The tabulation work in connection with his study of reproduction on spruce and fir cut-over lands was received from the Washington office, and is being whipped into shape for a progress report.

Meyer continued his work on the spruce-fir yield study. Volume tables in total cubic feet and in board feet, International 1/8-rule, were drawn up with Behre's taper series as a basis, and applied to the three species, red spruce, white spruce, and balsam. Most of the fully-stocked red spruce plots showed a form class of about 75, while balsam and white spruce were found to average about 70. Yield curves were next drawn up in board and cubic feet, disclosing the interesting fact that the average deviation of plots from the cubic foot yield curves was only 9.8 per cent, which corresponds quite closely to the average deviation of the total basal areas; while the board foot volumes has an average deviation of 21.20 per cent. This indicates that rejection of plots on the 2 S. D. basal area basis is not always satisfactory for all stand characters. The error of the total estimate in the first case was only .15%, and in the second, .7%.

Spaulding has made a beginning on a campaign to locate chestnut trees supposed to be resistant to the blight, and to examine them. Cooperation has been established with the Connecticut Experiment Station for this work in that state. During the past 15 years while Dr. Spaulding has been engaged in investigations of the white pine blister rust, he has accumulated a large number of specimens and extensive records on forest diseases, especially in the Northeastern states. This material is now being worked over, filed and arranged for use in his work upon forest trees in general which he is now initiating in cooperation with the station.

Mr. MacAloney was married early in the month to Miss Dorothy Vickere of Cornwall-on-Hudson, New York. Nevertheless, he has made notable progress in the compilation of his white pine weevil data.

District 5

The appointment of Show as District Forester resulted in his making a strenuous effort to finish up a number of his project reports, including the manuscript for the nursery practice and planting bulletin. Several days were spent with Kotok in preparing for publication the report on the hazard and liability study. A number of things pertaining

to the District Forester's job had to be gone over preparatory to relieving Mr. Redington. Show left for Washington on February 20 to see several bulletins through the editorial mill. The galley proof of the timber growing and logging practice bulletin is one of these.

In the methods of cutting study the tree sheets for eight of the sample plots have been coded and sent to Washington for machine sorting and summarizing.

A short trip was made to the Stanislaus by Dunning to discuss methods of growth calculation for a management plan under preparation.

A brief article was prepared for the Journal of Forestry on methods of predicting yield in selection stands.

J. E. Pemberton was detailed from the Sierra for a few days to work up some yellow pine increment core data for management plan use.

MANUSCRIPT NEWS NOTES

Lake States

Conversion of Jack Pine to Red and White Pine. R. M. Brown. (Jour. For.)

Forestry and the Mining Industry in the Lake Superior Region. R. Zon (Proc. of the Lake Superior Mining Institute).

Northeastern

Chart for Application of Percentile Taper Curves to Trees of Any Size Class. C. Edward Behre. (To Jour. For.)

District 5

Modifications in Forests of the Pacific Slope Due to Human Agencies. S. B. Show. (Jour. For.)

Predicting the Second Cut in National Forest Management Plans. Duncan Dunning. (To Jour. For.)

A Method of Studying Quality of Forest Nursery Stock in California. S. B. Show (J.A.R.)

Pacific Northwest

Timber Growing and Logging Practice in Douglas Fir Region. T. T. Munger. (For Dept. Bulletin)

Relative Accuracy of Calipers and Diameter Tape in Measuring Douglas Fir Trees. R. E. McArdle. (To Jour. For.)

Forest Fire Research and the Recording Milli-Ammeter. A. G. Simson (Pub. of the Esterline-Angus Co.)

Southern

The Place of Timber Growing in the Development of South Mississippi and East Louisiana. R. D. Forbes.

Washington

On Possible Modifications in the Ezekiel Method for Handling Curvilinear Multiple Correlation. Donald Bruce. (J.A.R.)

Comparison of Caliper and Diameter Tape Measurements of Second Growth Loblolly Pine. L. H. Reineke. (Jour. For.)

Rocky Mountain

The Scientific Work Being Done in Forestry. C. G. Bates. (Paper read before the Phi Sigma Scientific Society of Denver University, February 17, 1926.)

District 1

Timber Growing and Logging Practice in the Western White Pine Region. Elers Koch and R. N. Cunningham (For Dept. Bul.)

District 4

Establishment of Western Yellow Pine Forests on the Brushlands of the Intermountain Region. F. S. Baker (For Dept. Bul.)

Some Notes on the Present Timber Situation. F. S. Baker (Jour. For.)

IN PRINT

Behre, C. Edward. Comparison of Diameter Tape and Caliper Measurements in Second-growth Spruce. (Jour. For. Feb. 1926).

Forbes, R. D. Harbored Foes of the Forest. (Am. Forests and Forest Life. January, 1926.)

Hadley, E. W. Notes on Butt Taper of Tupelo Gum (Nyssa Aquatica) (Jour. For. Feb. 1926).

Hanzlik, E. J. Trees, A Study for Lumbermen: Douglas Fir. (Four L Lumber News. January, 1926.)

Reineke, L. H. The Determination of Tree Volume by Planimeter. (Jour. For. February, 1926).

Show, S. B. Timber Growing and Logging Practice in the California Pine Region (Bulletin 1402 - in proof)

Show, S. B. Yield Capacities of the Pure Yellow Pine Type on the East Slope of the Sierra Nevada Mountains in California. (JAR, December 15, 1925).

Zon, R. The Need for Research in Forestry. (Timberman, January, 1926.)

Kittredge, Jr., J. The Farmer and the Forests. (The Wisconsin Farmer, February 28, 1926.)

Zon, R. Effect of Drainage of Swamps upon Forest Growth. (Reclamation and Farm Engineering, February, 1926.)